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"Towards securing human welfare through management of insect diversity in a changing world"
"Vers une amélioration du bien-être humain grâce à la gestion de la diversité des insectes dans un monde en mutation"
"نحو تأمين الرفاهية البشرية من خلال إدارة تنوع الحشرات في عالم متغير"

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"TOWARDS SECURING HUMAN WELFARE THROUGH MANAGEMENT OF INSECT DIVERSITY IN A CHANGING WORLD"

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encoches de ponte, les déjections et les vermoulures, les orifices d'émergence, les dégâts de nutrition causée par les adultes immatures, à savoir les branches sectionnées. Les signes internes caractéristiques sont les galeries d'alimentation des larves et les chambres nymphales dans les branches. Les symptômes sont les cicatrisations après les attaques. Cette étude révèle que la présence des insectes peut être détectée avant les périodes d'attaques et constitue la base d'une lutte préventive efficace contre *A. trifasciata*.

Mots-clés : *Analeptes trifasciata*, anacardier, signes, symptômes, Brobo.

ST-3.14. Insect Net on High Tunnel as an Effective Technology to Protect Tomato Crops against Major Pests in the Highlands of Kenya

Thibaud M[1,2]*, Deletre E[1,2], Faris S[2], Kambo C[3], Chepkemoi J[2], and Kimani J[4]

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Abstract

Tomato crop is a agricultural precious commodity worldwide due to high economic returns, nutritive value and role in agricultural and economic diversification. Therefore, tomato demand is booming in sub-Saharan Africa to feed the growing urban populations. But high pest pressure throughout the year, insecticide resistance and the arrival of new species such as tomato leaf miner *Tuta absoluta* are major constraints in management. Consequently, in sub-Saharan Africa, tomato yield, quality and environmental health practices remain way below international standards. To increase marketable production and quality sustainable pest control is essential. Several alternatives including biopesticide, semiochemical and insect nets are being explored. This study was carried out to evaluate the effectiveness of a high tunnel covered by insect net combined with biopesticides to protect tomato crop against major pests. A statistic block design was implemented in the research centre of KALRO Mwea in Central Kenya during two seasons. Biopesticides based on *Bacillus thuringiensis* and *Metarizium anisopliae* were used to complete the physical protection against caterpillars and sucking pests respectively. The results showed that correctly used, insect nets used on high tunnel protect tomatoes against *T. absoluta*. Whiteflies (*Trialeurodes vaporariorum*), serpentine leaf miner (*Liriomyza spp*.) and brown thrips (*Frankliniella* spp) populations remained at a significantly lower level or arrived later inside the tunnel as compared to open cultivation, but the dark thrips species were much more inside at the flowering stage. Net treatment with permethrin did not provide a significant reduction in pests population as compared to non treated net. Biopesticides recorded significantly low pest populations as compared to the untreated control in open field. The yield was significantly improved mainly due to greenhouse effect. Demonstrations in farmer fields confirmed the effectiveness and affordability of this technology. With higher ventilation, reduction of dryness and a capacity to use rain, high tunnel high tunnel covered by net appeared effective against pests, adaptable and affordable to smallholder farmers to produce good quality tomatoes in the highlands of Kenya.

Key words: Insect net, High tunnel, *Tuta absoluta,* Biopesticides

ST-3.15. Bioecology of a Major Pest of Arabica Coffee in Eastern Africa Highlands, the African Coffee White Stem Borer, *Monochamus leuconotus* (Coleoptera: Cerambycidae)

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